Request for Letter of Map Revision Information Sheet

LOMR Application Title:

Request for Letter of Map Revision,

Burton Creek, Burton Creek Tributary C, Burton Creek Tributary D

Requestor: City of Bryan, Texas. Community No. 480082

Requestor Contact:

Mr. W. Paul Kasper, P.E., CFM

Office of City Engineer

City of Bryan

303 S. Texas Avenue

Bryan, Texas 77803

Phone: 979.209.5030

Affected Communities:

City of Bryan, Texas, Community No. 480082 City of College Station, Community No. 480083

Identifier:

Burton Creek & Tributaries C&D

Flooding Source:

Burton Creek, Burton Creek Tributary C, and Burton Creek

Tributary D

FIRM Panel(s)

Map 480301C

Panel 0141 C

Panel 0142 C

Panel 0143 C

Panel 0144 C

Consulting Engineer for LOMR Request Preparation:

Michael A. Collins, PE

Klotz Associates, Inc.

1160 Dairy Ashford

Suite 500

Houston, Texas 77079

Phone: 281.589.7257

email: Michael.collins@klotz.com

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- 1 Certified Elevation (Digital Terrain) Map
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 - 4-2: Lower Burton Creek, with 100-year Water Surface Elevations
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- 5 Existing Condition 100-Year, 500-Yearm and Floodway Boundaries

APPENDICES

- A Technical Report (Klotz Associates, Inc.), Attachment To Request For Letter Of Map Revision Burton Creek, Burton Creek Tributary C And Burton Creek Tributary D
- B Hydrologic Report (Mitchell And Morgan, LLP), including Existing Conditions HEC-1 Model
- C FIRM Panels (Nos. 48041C0141 C, 142 C, 143 C, and 144 C)
- D FEMA Letter of May 24, 2000 Re: Burton Creek
- E FEMA Letter of September 29, 2006 Re Burton Creek Tributary D
- F Digital Files (on CD)

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY OVERVIEW & CONCURRENCE FORM

O.M.B No. 1660-0016 Expires: 12/31/2010



PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. Please do not send your completed survey to the above address.

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (che	ck one);
☐ CLOMR:	A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).
⊠ LOMR:	A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)
	B. OVERVIEW

	100				т			***************************************
Community No. Ex: 480301	Community Na City of Katy	ame			State	Map No.	Panel No.	Effective Date
480287	Harris County	ı			TX TX	480301 48201C	0005D 0220G	02/08/83
48008	······	(See Attachment MT2-1)			TX	Attach	MT2-1	07/02/92
48008	***************************************	e Station (See Attachmee	ent MT2-1)	· · · · · · · · · · · · · · · · · · ·	TX	Attach	MT2-1	07/02/92
 2. a. Flooding Source: Burton Creek; Tributary C of Burton Creek, Tributary D of Burton Creek b. Types of Flooding: ☑ Riverine ☐ Coastal ☐ Shallow Flooding (e.g., Zones AO and AH) 								
	☐ Alluvia			tach Description		•		
. Project Name	_			, ,	,			
		Creek, Burton Creek Tribu			•			
. FEMA zone d	esignations affecte	ed: A, AE, X (choices: A,	, AH, AO, A1	1-A30, A99, AE,	AR, V, V1	-V30, VE, B,	C, D, X)	
. Basis for Req	uest and Type of R	Revision:						
a. The basi	s for this revision r	request is (check all that a	apply)					
⊠ Phys	ical Change		☐ Improved Methodology/Data		☐ Regulatory Floodway Revision		☐ Base Map C	Changes
☐ Coas	tal Analysis	☐ Hydraulic Analysis			: Analysis		☐ Corrections	
☐ Weir-	Dam Changes	Levee Certification		☐ Alluvial Fan Analysis		1	☐ Natural Cha	nges
⊠ New	Topographic Data	☑ Other (Attach Descr	ription)					
Note: A	photograph and na	arrative description of the	area of conc	cern is not requir	red, but is	very helpful d	uring review.	
b. The area of revision encompasses the following structures (check				k all that apply)				
Structure	\$:		☐ Lev	vee/Floodwall	⊠в	ridge/Culvert		

C. REVIEW FEE

Has the review fee for the appropriate request category been included?	☐ Yes ☑ No, Attach	Fee amount: \$			
Please see the DHS-FEMA Web site at http://www.fema.gov/plan/prevent/fhm/fr	rm_fees.shtm for Fe	e Amounts and Exemptions.			
D. SIGNATURE					

D. SIGNATURE					
All documents submitted in support of this request are co by fine or imprisonment under Title 18 of the United State	errect to the best of researches Code, Section 10	my knowledge. Tu 01.	inderstand that any fa	se statemer	nt may be punishable
Name:		Company: City of Bryan, Texas			
Mailing Address:	Daytime Telepho	one No.:	Fax	No.:	
		E-Mail Address:			
Signature of Requester (required):			Date:		
As the community official responsible for floodplain mana Revision (LOMR) or conditional LOMR request. Based u to meet all of the community floodplain management requall necessary Federal, State, and local permits have been the land and any existing or proposed structures to be rel 65.2(c), and that we have available upon request by FEM	pon the community' uirements, including n, or in the case of a moved from the SFI	s review, we find t the requirement t conditional LOMF A are or will be re	he completed or propo hat no fill be placed in R, will be obtained. In easonably safe from flo	osed project the regulato addition, we coding as de	meets or is designed ory floodway, and that have determined that
Community Official's Name and Title:	Community Official's Name and Title: Community Name: City of Bryan, Texas				
Mailing Address:		Daytime Telepho	one No.:	Fax	No.:
	E-Mail Address:				
Community Official's Signature (required):	Date:				
This certification is to be signed and sealed by a licensed elevation information data, hydrologic and hydraulic analy correct to the best of my knowledge. All analyses have b works are designed in accordance with sound engineerin data/plan provided, then the structure(s) has been built a	CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting data. All documents submitted in support of this request are correct to the best of my knowledge. All analyses have been performed correctly and in accordance with sound engineering practices. All project works are designed in accordance with sound engineering practices to provide protection from the 1% annual chance flood. If "as-built" conditions data/plan provided, then the structure(s) has been built according to the plans being certified, is in place, and is fully functioning. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.				
Certifier's Name: Michael Collins		License No.: Te	xas 39270	Expiration D	Date: 12/31/08
Company Name: Klotz Associates, Inc		Telephone No.:	281-589-7257	Fax No.: 28	81-589-7509
Signature: Ducky Mach	PE,#34	070		Date: 08/07	7/08
Ensure the forms that are appropriate to your revision	n request are inclu	ded in your subn	nittal.		
Form Name and (Number)	Required if	abaraca ar vintor	aurfono minuntiono		
Riverine Hydrology and Hydraulics Form (Form 2) Riverine Structures Form (Form 3) Channel is modified, addition/revision of bridge/culverts addition/revision of levee/floodwall, addition/revision of dam M. A. COLLINS				COLLINS	
Coastal Analysis Form (Form 4)	New or revised coa	astal elevations		392	!70
Coastal Structures Form (Form 5)	Addition/revision o	f coastal structure			
☐ Alluvial Fan Flooding Form (Form 6)	Flood control mea	sures on alluvial fa	ns		

C. REVIEW FEE

Has the review fee for the appropriate request category been include	led?		☑ Yes ☑ No, Attach Expla	Fee amo	ount: \$	
Please see the DHS-FEMA Web site at http://www.fema.gov/pla	ion/nreve		,		d turnations	
			Similar ree care	Junio a	d exemptions.	
	D. SIGNA					
All documents submitted in support of this request are correct to the by fine or imprisonment under Title 18 of the United States Code, So			nderstand that any	false sta	itement may be punishable	
Name:		Company: City o	of College Station,	Texas		
Mailing Address:	-	Daytime Telepho	one No.:		Fax No.:	
		E-Mail Address:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		***************************************	
Signature of Requester (required):			Date:			
As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.						
Community Official's Name and Title:			Community Name	e: Colleg	e Station,Texas	
Mailing Address:		Daytime Telepho	ne No.:		Fax No.:	
	***************************************	E-Mail Address:				
Community Official's Signature (required):		ndendarden de de la constante	Date:			
CERTIFICATION BY REGISTERED PRO	OFESSIC	ONAL ENGINEE	R AND/OR LAN) SURV	EYOR	
This certification is to be signed and sealed by a licensed land surve elevation information data, hydrologic and hydraulic analysis, and an correct to the best of my knowledge. All analyses have been perforr works are designed in accordance with sound engineering practices data/plan provided, then the structure(s) has been built according to false statement may be punishable by fine or imprisonment under Ti	ny other sumed correct to provide the plans	supporting data. All ectly and in accord e protection from t s being certified, is	I documents submit ance with sound en the 1% annual chan in place, and is full	tted in sungineering nee flood. Ny function	pport of this request are g practices. All project If "as-built" conditions	
Certifier's Name: Michael Collins		License No.: Tex	(as 39270	Expira	tion Date: 12/31/08	
Company Name: Klotz Associates, Inc	10000000000000000000000000000000000000	Telephone No.: 2	281-589-7257	Fax No	o.: 281-589-7509	
Signature: Mild Walk, PE #-	3927	to		Date:	08/07/08	
Ensure the forms that are appropriate to your revision request a	are includ	ded in your subm	ittal.			
Form Name and (Number) Required	<u>l if</u>			# C	TEST OF THE PARTY	
☐ Riverine Hydrology and Hydraulics Form (Form 2) New or rev	vised disc	charges or water-s	urface elevations			
			of bridge/culverts, ddition/revision of da	ant	M. A. COLLINS 39270	
Coastal Analysis Form (Form 4) New or rev	vised coar	stal elevations		1/2	Most of 19	
Coastal Structures Form (Form 5) Addition/re	evision of	coastal structure			CONAL SUPPLIES	
☐ Alluvial Fan Flooding Form (Form 6) Flood conf	troi measi	ures on alluvial far	18		,	

ATTACHMENT MT2-1, Page 1 of 2

B. OVERVIEW

Attachment to MT-2 Form 1, page 1 of 2

Item 1. Map and Panel Numbers

Community Name	State	Map No.	Panel	Effective
	000 per		No.	Date
City of Bryan	TX	480301C	0141 C	07/02/92
(Community No. 480082)	A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.	480301C	0142 C	07/02/92
		480301C	0143 C	07/02/92
		480301C	0144 C	07/02/92
City of College Station	TX	480301C	0142 C	07/02/92
(Community No. 480083)		480301C	0143 C	07/02/92
		480301C	0144 C	07/02/92

Item 5.a.

- Physical changes: There are changes in runoff due to watershed development.
- Improved Methodology/Data: There are changes due to more accurate description of bridges and culverts.
- Regulatory Floodway Revisions: Because of the physical changes and improved methodology/data, there are changes in the Regulatory Floodway
- Hydraulic Analysis: HEC-2 Model replaced by HEC-RAS model
- Hydrologic Analysis: Revise hydrologic analysis made which incorporates general use changes in watershed.
- New Topographic Data: Topographic information now incorporates City of Bryan and City of College Station Digital Terrain Model (DEM) to enhance the out-ofbank topographic description.
- Other: Extension of modeling to points beyond prior FIS and FEMA FIRMs
 - o For Burton Creek: The limits of the 1992 FIS study extended approximately 23,500 feet upstream from confluence of Burton Creek with Carters Creek. In the existing condition model of this LOMR application the limits of study extend approximately 22,000 feet upstream from the confluence of Burton Creek and Carters Creek because a segment of the Burton Creek channel has been enclosed in a culvert.
 - o For Burton Creek Tributary C: The limits of the 1992 FIS study extended approximately 2,323 feet upstream of the confluence of Tributary C and Burton Creek. In the existing condition model of this LOMR application the limits of study extend approximately 8,450 feet upstream from the confluence of Tributary C with Burton.
 - For Burton Creek Tributary D: The limits of the 1992 FIS study extended approximately 7,390 feet upstream of the confluence of Tributary D with Burton Creek to immediately upstream of Country Club Lake. In the existing condition model of this LOMR application the limits of study

ATTACHMENT MT2-1, Page 2 of 2

extend approximately 8,900 feet upstream from the confluence of Tributary D with Burton Creek to the base of the Fin Feather Lake dam.

Item 5.b. - Structures

• Channelization, Bridge/Culvert and Dam:

The channelization and bridge/culvert structures are <u>all existing structures</u>, not proposed structures or structures constructed after submission of a CLOMR. This LOMR is being submitted for the purposes of updating the existing conditions. The attached Technical Report describes these existing structures. <u>No new or proposed channelization</u>, <u>bridge/culvert</u>, or <u>dam is involved (Also: No Form 3 is therefore required)</u>

C. REVIEW FEE

Our interpretation of Section 72.5 of the National Flood Insurance Program (NFIP) which describes the requirements for fee exemptions indicates that a fee is not required for this request to be reviewed and acted upon by FEMA. The attached FEMA Memorandum of Feb. 17, 2000, discusses exemptions. Among the exemptions is the exemption (f) for changes based on flood hazard information meant to improve upon that shown on the flood map or within the flood study. The present LOMR request is being made by the City of Bryan (a local agency) because of more detailed hydrologic and hydraulic studies (not because of new development or construction) and updated topographic data to replace prior floodplain boundaries performed with older topographic data with 10-ft contours developed in 1971 (see pg. 19 of FIS for Brazos Texas and Unincorporated Areas FIS, dated July 2, 1992) and for which FEMA no longer has the hydraulic model for the streams in question (as discussed in greater depth in the Appendix A Technical Report attachment).

In addition, in telephone discussion on November 29, 2007, by Michael Collins (Klotz Associates, Engineer for this LOMR submission) with Mr. Saleem Ashraf, Texas State Coordinator, FEMA/Michael Baker Jr. Co., regarding LOMRs for Burton Creek, Tributary C, and Tributary D, Mr Ashraf indicated it was his opinion that fee would not be required for the present LOMR since this LOMR is not being submitted because of new projects.



Federal Emergency Management Agency

Washington, D.C. 20472

February 17, 2000

MEMORANDUM FOR:

Doug Bellomo, P.E., Project Officer

Eastern Studies Team

Mike Grimm, Project Officer

Western Studies Team

[Original Signed]

FROM:

Matthew B. Miller, P.E., Chief

Hazards Study Branch

SUBJECT:

Procedure Memorandum No. 10 - Guidance on the New Fee Charge

Structure

Background: On September 23, 1999, FEMA published a Final Rule regarding procedures and fees for processing map changes (copy attached). Under this rule, map change requests based on flood hazard information meant to improve upon the information contained on the flood map or within the flood study will be exempt from review and processing fees. The rule also states that improvements to flood maps or studies, which partially or wholly incorporate man-made modifications within the Special Flood Hazard Area (SFHA) will not be exempt from review and processing fees. This Final Rule adds exemption (f) to Part 72.5 of the CFR. The purpose behind this rule is to encourage communities or other entities to submit new/improved flood hazard information in approximate Zone A areas (specifically when the data was not generated by a Federal, State, or local agency) as well as the submittal of improved flood hazard information in detailed study areas. The submittal of this flood data will serve to update Flood Insurance Rate Maps, thereby improving the flood maps, strengthening local floodplain management initiatives, and reducing FEMA restudy costs.

The intent of fee exemptions (a)-(f) contained in Part 72.5 of the CFR is to avoid penalizing revision requestors when the flood maps contain an error and to encourage the submittal of more detailed data for approximate Zone A areas, and new or improved data when changes (not associated with development projects within the SFHA) have occurred.

Issue: Further guidance is needed to clarify what is meant by *improving* flood hazard information shown on a flood map, especially in areas where the FIRM contains BFEs and a floodway; what constitutes an *error*; and where to draw the line between man-made changes within an SFHA and other man-made changes outside the SFHA that affect the flood hazard data.

Final Procedure: Clarification of the review and processing fee exemption criteria is summarized below:

Exemption (a) - Requests for map changes based on mapping or study analysis errors

Some clarification is needed to define what constitutes an "error". A computational error in the hydrologic or hydraulic model, inconsistency between the BFEs shown on the FIRM and those contained on the flood profiles, flood boundaries not following the contours on the workmap, and the omission of a bridge or culvert in a detailed study area that was overlooked at the time of the FEMA study are examples of errors. The addition of cross sections in a detailed study area to better define the floodplain would not be considered an "error" nor would a new study for an area that was shown as approximate Zone A on a FIRM. (Refer to exemptions (e) and (f) discussed below.)

Exemption (b) - Requests for map changes based on the effects of natural changes within SFHAs

Examples of natural changes within SFHAs would be stream erosion or meandering, naturally occurring sedimentation in the stream channel or overbank, or significant changes in vegetative cover due to growth of new vegetation or the loss of vegetation caused by wildfire or other natural event such as prolonged drought. Because this exemption is limited to natural changes within the SFHA, a new hydrologic analysis that takes into account current runoff conditions in the watershed would not be considered under this exemption, but could warrant exemption under (e) or (f) as discussed below.

Exemption (c) - Requests for a Letter of Map Amendment

This exemption is self-explanatory and requires no clarification.

Exemption (d) - Requests for map changes based on Federally sponsored flood-control projects

This exemption is self-explanatory and requires no clarification.

Exemption (e) - Requests based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies

The intent of this exemption has always been to encourage those who generate more detailed flood hazard information for approximate Zone A areas to submit it to FEMA for inclusion on the flood maps. By definition, entities other than those listed under the exemption criteria would <u>not</u> be exempt from processing fees under exemption (e), but would be under exemption (f). It should be noted that more detailed studies for approximate Zone A areas could include the effects of manmade changes within or outside the SFHA. Typically a new more detailed study for an approximate Zone A area would have a hydrologic analysis that takes into account current runoff conditions in the watershed. These analyses would include the effects of development that occurred since the flood map was produced. Sorting out whether these changes are due to development inside or outside the SFHA would be difficult to determine, and therefore, would not be evaluated for the purpose of denying fee exemption. Obvious man-made changes within the SFHAs such as new bridges or culverts, fill, structural flood control measures, or stream modifications can be detected and could result in the imposition of processing fees.

Exemption (f) - Requests for map changes based on flood hazard information meant to improve upon that shown on the flood map or within the flood study

The term "improve" is not defined. However, it is anticipated that this exemption would cover the following situations so long as they do not include, in part or wholly, man-made changes within the SFHA:

- Detailed hydrologic and hydraulic studies for approximate Zone A areas conducted by entities other than Federal, State, and local agencies as addressed in exemption (e).
- Revised hydraulic analyses based on additional cross sections to better define the 100-year floodplain.
- Revised hydrologic analyses based on more detailed landuse/landcover data. (So long as
 the data does not include the effects of man-made changes within the SFHA.)
- Revised floodplain boundaries based on more detailed topography in approximate or detailed study areas.

It should be noted that changes in floodway boundaries not associated with physical changes within the SFHA <u>would not</u> be exempt from processing fees. However, errors in the floodway delineation or modeling would be exempt from fees under category (a).

Generally, for detailed studied streams where a bridge or detention facility was overlooked when the original study was conducted should be considered an "error" and should be fee exempt under category (a) rather than this category. However, there may be cases where the original study was of limited scope/budget, or was based on a study conducted by an entity other than FEMA. In these cases, the addition of overlooked bridges or culverts should be considered an "improvement" and therefore would be fee exempt under this category.

Other Considerations

There will still be cases that are not clearly exempt under categories (a)-(f). In such cases the FEMA Project Engineers and Project Officers will have to use their best judgement in determining if fees should be waived. Cooperating Technical Communities (CTCs) may play a key role in these situations and may, in fact, be a determining factor in waiving processing fees if there is specific mention of fee waivers in their agreement with FEMA.

It should also be noted that any potential floodplain management violations identified through the submittal of new or revised flood hazard data need to be closely coordinated with the FEMA Regional Office.

cc: see distribution list

Procedure Memorandum No. 10 - Guidance on New Fee Charge Structure

Distribution List

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U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1660-0016 Expires: 12/31/2010

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. Please do not send your completed survey to the above address.

	Flooding Source: Burton Creek Note: Fill out one form for each flooding source studied					
	A. HYDROLOGY					
1.	Reason for New Hydrologic Ana	lysis (check all	that apply)			
	☐ Not revised (skip to section I	В) [☐ No existing analysis	5		ta
			Proposed Condition	ns (CLOMR)	Changed phy	ysical condition of watershed
2.	Comparison of Representative 1	%-Annual-Char	ce Discharges			
	Location	Drainag	e Area (Sq. Mi.)	Effective/I	FIS (cfs)	Revised (cfs)
Se	e Attached MT2-2a	See Attached	MT2-2a	See Attached MT2	2-2a	See Attached MT2-2a
Se	e Attached MT2-2a	See Attached	MT2-2a	See Attached MT2	?-2a	See Attached MT2-2a
3	e Attached MT2-2a	See Attached	MT2-2a	See Attached MT2	?-2a	See Attached MT2-2a
.	Methodology for New Hydrologic	: Analysis (ched	k all that apply)			
	Statistical Analysis of Gage Regional Regression Equation			f Model TR-20, HE0 h description)	C-1, HEC-HMS etc	
	Please enclose all relevant mode the new analysis.	els in digital forr	nat, maps, computatio	ns (including comput	ation of parameter	rs) and documentation to support
4.	Review/Approval of Analysis					
	If your community requires a reg	ional, state, or f	ederal agency to revie	w the hydrologic ana	lysis, please attac	h evidence of approval/review.
5.	Impacts of Sediment Transport of	n Hydrology				
	Was sediment transport consid your explanation for why sedime			en fill out Section F (Sediment Transpo	rt) of Form 3. If No, then attach

B. HYDRAULICS

1.	Reach to be Revised				
		Description	Cross Section	Water-Surfa	ace Elevations (ft.)
				Effective	Proposed/Revised
	Downstream Limit	See Attached MT2-2a	See Attached MT2- 2a	See Attached MT2- 2a	See Attached MT2-2a
	Upstream Limit	See Attached MT2-2a	See Attached MT2- 2a	See Attached MT2- 2a	See Attached MT2-2a
2.	Hydraulic Method/Model Used				
	Hydraulic Analysis HEC-RAS. Se	ee attached MT2-2a			

B. HYDRAULICS (CONTINUED)

3. Pre-Submittal Review of Hydraulic Models

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. These review programs may help verify that the hydraulic estimates and assumptions in the model data are in accordance with NFIP requirements, and that the data are comparable with the assumptions and limitations of HEC-2/HEC-RAS. CHECK-2 and CHECK-RAS identify areas of potential error or concern. These tools do not replace engineering judgment. CHECK-2 and CHECK-RAS can be downloaded from http://www.fema.gov/plan/prevent/fhm/frm_soft.shtm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. Review of your submittal and resolution of valid modeling discrepancies may result in reduced review time.

4.	Models Submitted	Natural Run		Floodway Run	<u>Datum</u>
	Duplicate Effective Model*	File Name: See Attached MT2-2a	Plan Name:	File Name:	Plan Name:
	Corrected Effective Model*	File Name: See Attached MT2-2a	Pian Name:	File Name:	Plan Name:
	Existing or Pre-Project Conditions Model	File Name: See Attached MT2-2a	Plan Name:	File Name:	Plan Name:
	Revised or Post-Project Conditions Model	File Name: See Attached MT2-2a	Plan Name:	File Name:	Plan Name:
	Other - (attach description)	File Name: See Attached MT2-2a	Plan Name:	File Name:	Plan Name:

^{*} For details, refer to the corresponding section of the instructions.

☑ Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

A certified topographic map must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

☑ Digital Mapping (GIS/CADD) Data Submitted

e that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM ast tie-in with the effective floodplain and regulatory floodway boundaries. Please attach a copy of the effective FIRM and/or FBFM, annotated to show the boundaries of the revised 1%- and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%- and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area of revision.

□ Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1.	For LOMR/CLOMR requests, do Ba	se Flood Elevations (BFEs) increase?	⊠ Yes □ No
	regulations: The proposed project er	ner of the following is true, please submit evidence of acroaches upon a regulatory floodway and would result in increaches upon a SFHA with or without BFEs established	ncreases above 0.00 foot.
	·	request require property owner notification and acceptant property owner notification and acceptance (if availa a MT-2 Form 2 Instructions.	
2.	Does the request involve the placer	nent or proposed placement of fill?	☐ Yes ☒ No
	proposed structures, meets all of the	ble to certify that the area to be removed from the speci he standards of the local floodplain ordinances, and is rea R 60.3(a)(3), 65.5(a)(4), and 65.6(a)(14). Please see the	sonably safe from flooding in accordance with the
3.	For LOMR requests, is the regulator	ry floodway being revised?	Yes □ No
	required for requests involving revis	ory floodway revision notification. As per Paragraph 65 ions to the regulatory floodway. (Not required for revisions a regulatory floodway is being added. Elements and exastructions.)	to approximate 1%-annual-chance floodplains
4.	For LOMR/CLOMR requests, does to	this request have the potential to impact an endangered sp	pecíes? ☐ Yes ☒ No
	(ESA). Section 9 of the ESA pro-	on to the community to show that you have complied with hibits anyone from "taking" or harming an endangered s I.S. Fish and Wildlife Service or National Marine Fisheries	species. If an action might harm an endangered
	For actions authorized, funded, or to compliance with Section 7(a)(2) of the compliance with Section 7(a)(2) of the compliance with Section 7(a)(b) and the compliance	being carried out by Federal or State agencies, please some ESA.	ibmit documentation from the agency showing its



^{*} Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.

ATTACHMENT MT2-2a Page 1 of 2

Attachment to MT-2 Form 2 – Burton Creek

Item A. Hydrology, No. 2, Comparison or Representative 1%-Annual-Change Discharge

Location	Drainage Area (sq-mi)	FIS (cfs)	Revised (cfs) (see Note 1 at end of this table)
Above confluence with Carters Creek	7.26	11,600	9,454
At Tanglewood Drive	4.32	6,900	7,140
At Villa Maria Road	1.34	4,020	3,123

Note 1: The listing flows under the heading "Revised" are the Existing Condition flows. The Revised Conditions and Existing Conditions are the same; see Section 4.5 in Appendix A in the attached Technical Report for more details.

Item A. Hydrology, No. 3, Methodology

Hydrologic methods used to revise precipitation/runoff are discussed in detail in Appendix B of the attached Technical Report.

Item A. Hydrology, No. 5, Impacts of Sediment Transport

Sediment Transport was not considered because significant channel improvements for erosion protection have been made over the years as a result of development. In addition, some of the channel is concrete lined.

Item B. Hydraulics, No. 1, Reach to be Revised

Reach to be Revised	Description	Cross	Water-Surface Elevations (1	
Reach to be Revised	Description	Section	FIS	Existing
Downstream Study Limit	Station 176		N/A	263.8
Downstream FIS Limit	Station 2059	A	269.5	269.5
Upstream Study Limit	Station 22810	О	328.6	331.6
Upstream FIS Limit	Station 23443	Р	334.9	333.0

Item B. Hydraulics, No. 2, Hydraulic Method Used

The Duplicate Model is a HEC-2 model, version 4.6.2. All other remaining models are HEC-RAS models, version 3.1.2.

ATTACHMENT MT2-2a Page 2 of 2

Item B. Hydraulics, No. 4, Models Submitted

Model	Natural File Name	Floodway File Name
Duplicate	MainStem.Ih2 &	See discussion in Section 4.2 in
Effective	BurtonCreekMainHEC2Imp.prj	Appendix A Technical Report
Model		•
Corrected	BurtonCreekMainHEC2Imp.prj	See discussion in Section 4.3 in
Effective		Appendix A Technical Report
Model		•
Existing	BurtonCreekMainStem_0705.prj	BurtonCreekMainStemFloodway
Conditions		Analysis_0705.prj
Model		
Revised	Same as Existing Conditions	Same as Existing Conditions
Conditions	Model	Model
Model		

Item C. Mapping Requirements

The undersigned hereby affirms that the following maps, entitled

EXHIBITS

- Regulatory (Current FEMA) Floodplain and Floodway versus Existing 100-year, 500-year, and Floodway Water Surface Boundaries
 - 3-1: Overall Burton Creek, Tributary C and Tributary D
 - 3-2: Lower Burton Creek
 - 3-3: Middle Burton Creek and Tributary C
 - 3-4: Upper Burton Creek and Tributary D
- Existing 100-year, 500-year, and Floodway Water Surface Boundaries Cross Section Map Worksheet: In segments, as follows:
 - 4-1: Overall Burton Creek, Tributary C and Tributary D
 - 4-2: Lower Burton Creek, with 100-year Water Surface Elevations
 - 4-3: Middle Burton Creek and Tributary C, with 100-year Water Surface Elevations
 - 4-4: Upper Burton Creek and Tributary D, with 100-year Water Surface Elevations
- 5 Existing Condition 100-Year, 500-Year and Floodway Boundaries With Computed Existing Base Flood Elevations

and submitted with this LQMR MT-2 form are to the undersigned knowledge true and accurate representations of existing and revised floodplain and floodway conditions.

Signed

Michael A. Collins Pl

s. PE. Texas #3927

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1660-0016 Expires: 12/31/2010

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. Please do not send your completed survey to the above address.

	Flooding Source: Burton Creek Tributary C Note: Fill out one form for each flooding source studied					
	A. HYDROLOGY					
1.	Reason for New Hydrologic An	alysis (check	all that apply)			-
	☐ Not revised (skip to section	1 B)	☐ No existing analy	sis		d data
			☐ Proposed Conditi	ions (CLOMR)	Changed	d physical condition of watershed
2.	Comparison of Representative	1%-Annual-Ch	ance Discharges			
	Location	Drain	age Area (Sq. Mi.)	Effectiv	ve/FIS (cfs)	Revised (cfs)
Se	ee Attached MT2-2b	See Attach	ed MT2-2b	See Attached N	/IT2-2b	See Attached MT2-2b
Se	e Attached MT2-2b	See Attach	ed MT2-2b	See Attached N	/IT2-2b	See Attached MT2-2b
ا ?	e Attached MT2-2b	See Attach	ed MT2-2b	See Attached N	/T2-2b	See Attached MT2-2b
	Methodology for New Hydrolog	ic Analysis (ch	eck all that apply)			
	Statistical Analysis of Gage Regional Regression Equa		☑ Precipitation/Run☑ Other (please atta	off Model TR-20, Fach description)	HEC-1, HEC-HMS	S etc
	Please enclose all relevant mo the new analysis.	dels in digital fo	ormat, maps, computa	tions (including com	putation of param	neters) and documentation to support
4.	Review/Approval of Analysis					
	If your community requires a re	gional, state, c	r federal agency to rev	riew the hydrologic a	analysis, please a	ttach evidence of approval/review.
5.	Impacts of Sediment Transport	on Hydrology				
	Was sediment transport considered?					

B. HYDRAULICS

1.	Reach to be Revised				
		Description	Cross Section	Water-Surfac	ce Elevations (ft.)
				Effective	Proposed/Revised
	Downstream Limit	See Attached MT2-2b	See Attached MT2- 2b	See Attached MT2- 2b	See Attached MT2-2b
J .	Upstream Limit	See Attached MT2-2b	See Attached MT2- 2b	See Attached MT2- 2b	See Attached MT2-2b
2.	Hydraulic Method/Model Used				
	Hydraulic Analysis HEC-RAS. Se	e attached MT2-2b			
L					

B. HYDRAULICS (CONTINUED)

3. Pre-Submittal Review of Hydraulic Models

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. These review programs may help verify that the hydraulic estimates and assumptions in the model data are in accordance with NFIP requirements, and that the data are comparable with the assumptions and limitations of HEC-2/HEC-RAS. CHECK-2 and CHECK-RAS identify areas of potential error or concern. These tools do not replace engineering judgment. CHECK-2 and CHECK-RAS can be downloaded from http://www.fema.gov/plan/prevent/fhm/frm_soft.shtm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. Review of your submittal and resolution of valid modeling discrepancies may result in reduced review time.

4.	Models Submitted	Natural Run		Floodway Run	<u>Datum</u>
	Duplicate Effective Model*	File Name: See Attached MT2-2b	Plan Name:	File Name:	Plan Name:
	Corrected Effective Model*	File Name: See Attached MT2-2b	Plan Name:	File Name:	Plan Name:
	Existing or Pre-Project Conditions Model	File Name: See Attached MT2-2b	Plan Name:	File Name:	Plan Name:
	Revised or Post-Project Conditions Model	File Name: See Attached MT2-2b	Plan Name:	File Name:	Plan Name:
	Other - (attach description)	File Name: See Attached MT2-2b	Plan Name:	File Name:	Plan Name:

^{*} For details, refer to the corresponding section of the instructions.

□ Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

A certified topographic map must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

□ Digital Mapping (GIS/CADD) Data Submitted

te that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM ust tie-in with the effective floodplain and regulatory floodway boundaries. Please attach a copy of the effective FIRM and/or FBFM, annotated to show the boundaries of the revised 1%- and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%- and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area of revision.

☑ Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1.	For LOMR/CLOMR requests, do Base Flood	Elevations (BFEs) increase?	⊠ Yes □ No
	 a. For CLOMR requests, if either of the regulations: 	e following is true, please submit evidence of	compliance with Section 65.12 of the NFIP
	, , , ,	s upon a regulatory floodway and would result in inc s upon a SFHA with or without BFEs established an	
	•	require property owner notification and acceptance y owner notification and acceptance (if available orm 2 Instructions.	— —
2.	Does the request involve the placement or pr	roposed placement of fill?	☐ Yes ⊠ No
	proposed structures, meets all of the standa	tify that the area to be removed from the special ards of the local floodplain ordinances, and is reason (3), 65.5(a)(4), and 65.6(a)(14). Please see the M	onably safe from flooding in accordance with the
3.	For LOMR requests, is the regulatory floodwa	ay being revised?	⊠ Yes □ No
	required for requests involving revisions to the	way revision notification. As per Paragraph 65.7(te regulatory floodway. (Not required for revisions to tory floodway is being added. Elements and examples.)	o approximate 1%-annual-chance floodplains
4.	For LOMR/CLOMR requests, does this reque	est have the potential to impact an endangered spe	cies? ☐ Yes ☒ No
	(ESA). Section 9 of the ESA prohibits any	community to show that you have complied with Se yone from "taking" or harming an endangered sp and Wildlife Service or National Marine Fisheries Se	ecies. If an action might harm an endangered
	For actions authorized, funded, or being car compliance with Section 7(a)(2) of the ESA.	ried out by Federal or State agencies, please sub	mit documentation from the agency showing its

^{*} Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.



ATTACHMENT MT2-2b Page 1 of 2

Attachment to MT-2 Form 2 – Burton Creek Tributary C

Item A. Hydrology, No. 2, Comparison or Representative 1%-Annual-Change Discharge

Location	Drainage Area (sq-mi)	FIS (cfs)	Revised (cfs) (see Note 1 at end of this table)
At confluence with Burton Creek	1.43	2,990	3,246
Approximately 1,220 feet upstream of confluence with Burton Creek	1.04	2,200	3,246

Note 1: The listing flows under the heading "Revised" are the Existing Condition flows. The Revised Conditions and Existing Conditions are the same; see Section 4.5 in Appendix A in the attached Technical Report for more detail.

Item A. Hydrology, No. 3, Methodology

Hydrologic methods used to revise precipitation/runoff are discussed in detail in Appendix B of the attached Technical Report.

Item A. Hydrology, No. 5, Impacts of Sediment Transport

Sediment Transport was not considered because significant channel improvements for erosion protection have been made over the years as a result of development. In addition, some of the channel is concrete lined.

Item B. Hydraulics, No. 1, Reach to be Revised

Reach to be Revised	Description	Cross	Water-Surface	ce Elevations (ft)
Reach to be Revised	Description	Section	FIS	Existing
Downstream FIS Limit	Station 370	A	281.6	N/A
Downstream Study Limit	Station 742		N/A	281.3
Upstream FIS Limit	Station 2323	C	285.2	286.8
Upstream Study Limit	Station 8445		N/A	314.7

Item B. Hydraulics, No. 2, Hydraulic Method Used

The Duplicate Model is a HEC-2 model, version 4.6.2. All other remaining models are HEC-RAS models, version 3.1.2.

ATTACHMENT MT2-2b Page 2 of 2

Item B. Hydraulics, No. 4, Models Submitted

Model	Natural File Name	Floodway File Name
Duplicate	TribC.Ih2 &	See discussion in Section 4.2
Effective	BurtonCreekTribCHec2Imp.prj	Appendix A Technical Report
Model		
Corrected	BurtonCreekTribCHec2Imp.prj	See discussion in Section 4.3
Effective		Appendix A Technical Report
Model		1
Existing	BurtonCreekTribC_0705.prj	BurtonCreekTribCFloodwayAnalysi
Conditions		s 0705.prj
Model		1 J
Revised	Same as Existing Conditions	Same as Existing Conditions Model
Conditions	Model	
Model		

Item C. Mapping Requirements

The undersigned hereby affirms that the following maps, entitled

EXHIBITS

- Regulatory (Current FEMA) Floodplain and Floodway versus Existing 100-year, 500-year, and Floodway Water Surface Boundaries
 - 3-1: Overall Burton Creek, Tributary C and Tributary D
 - 3-2: Lower Burton Creek
 - 3-3: Middle Burton Creek and Tributary C
 - 3-4: Upper Burton Creek and Tributary D
- Existing 100-year, 500-year, and Floodway Water Surface Boundaries Cross Section Map Worksheet: In segments, as follows:
 - 4-1: Overall Burton Creek, Tributary C and Tributary D
 - 4-2: Lower Burton Creek, with 100-year Water Surface Elevations
 - 4-3: Middle Burton Creek and Tributary C, with 100-year Water Surface Elevations
 - 4-4: Upper Burton Creek and Tributary D, with 100-year Water Surface Elevations
- 5 Existing Condition 100-Year, 500-Year and Floodway Boundaries With Computed Existing Base Flood Elevations

and submitted with this LOMR MT-2 form are to the undersigned knowledge true and accurate representations of existing and revised floodplain and floodway conditions.

Signed

Michael/A. Collins.

Page 2 of 2

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1660-0016 Expires: 12/31/2010

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. Please do not send your completed survey to the above address.

Flooding Source: Burton Creek Tributary D Note: Fill out one form for each flooding source studied						
A. HYDROLOGY						
Reason for New Hydrologic Analy	Reason for New Hydrologic Analysis (check all that apply)					
☐ Not revised (skip to section B)) No existing analys	sis		ed data		
Alternative methodology	☐ Proposed Condition	ons (CLOMR)	□ Change	d physical condition of watershed		
2. Comparison of Representative 1%	6-Annual-Chance Discharges					
Location	Drainage Area (Sq. Mi.)	Effectiv	re/FIS (cfs)	Revised (cfs)		
See Attached MT2-2c	See Attached MT2-2c	See Attached N	1T2-2c	See Attached MT2-2c		
See Attached MT2-2c	See Attached MT2-2c	See Attached M	T2-2c	See Attached MT2-2c		
e Attached MT2-2c	See Attached MT2-2c	See Attached M	1T2-2c	See Attached MT2-2c		
Methodology for New Hydrologic A	Analysis (check all that apply)					
Statistical Analysis of Gage Roll Regional Regression Equation		off Model TR-20, H ch description)	IEC-1, HEC-HMS	S etc		
Please enclose all relevant models the new analysis.	s in digital format, maps, computati	ons (including comp	outation of paran	neters) and documentation to support		
4. Review/Approval of Analysis						
If your community requires a regio	nal, state, or federal agency to revi	ew the hydrologic a	nalysis, please a	attach evidence of approval/review.		
5. Impacts of Sediment Transport on	Hydrology					
Was sediment transport considered? Yes No If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.						

	B. HYDRAULICS					
1.	Reach to be Revised				attantament and the second	
		Description	Cross Section	Water-Surfac	e Elevations (ft.)	
				Effective	Proposed/Revised	
	Downstream Limit	See Attached MT2-2c	See Attached MT2- 2c	See Attached MT2- 2c	See Attached MT2-2c	
	Upstream Limit	See Attached MT2-2c	See Attached MT2- 2c	See Attached MT2- 2c	See Attached MT2-2c	
2.	Hydraulic Method/Model Used					
	Hydraulic Analysis HEC-RAS, Se	e attached MT2-2c				

B. HYDRAULICS (CONTINUED)

3. Pre-Submittal Review of Hydraulic Models

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. These review programs may help verify that the hydraulic estimates and assumptions in the model data are in accordance with NFIP requirements, and that the data are comparable with the assumptions and limitations of HEC-2/HEC-RAS. CHECK-2 and CHECK-RAS identify areas of potential error or concern. These tools do not replace engineering judgment. CHECK-2 and CHECK-RAS can be downloaded from http://www.fema.gov/plan/prevent/fnm/frm_soft.shtm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. Review of your submittal and resolution of valid modeling discrepancies may result in reduced review time.

4.	Models Submitted	Natural Run		Floodway Run	<u>Datum</u>
	Duplicate Effective Model*	File Name: See Attached MT2-2c	Plan Name:	File Name:	Plan Name:
	Corrected Effective Model*	File Name: See Attached MT2-2c	Plan Name:	File Name:	Plan Name:
	Existing or Pre-Project Conditions Model	File Name: See Attached MT2-2c	Plan Name:	File Name:	Plan Name:
	Revised or Post-Project Conditions Model	File Name: See Attached MT2-2c	Plan Name:	File Name:	Plan Name:
	Other - (attach description)	File Name: See Attached MT2-2c	Plan Name:	File Name:	Plan Name:

^{*} For details, refer to the corresponding section of the instructions.

☑ Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

A certified topographic map must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

☐ Digital Mapping (GIS/CADD) Data Submitted

ite that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM hust tie-in with the effective floodplain and regulatory floodway boundaries. Please attach a copy of the effective FIRM and/or FBFM, annotated to show the boundaries of the revised 1%- and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%- and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area of revision.

Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1.	For	LOMR/CLOMR requests, do Base Flood Elevations (BFEs) increase?	
٠.			⊠ Yes □ No
Latin	a.	For CLOMR requests, if either of the following is true, please submit evidence of compliance with regulations:	
		 The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases.) foot, ncreases above 1.00 foot.
		For LOMR requests, does this request require property owner notification and acceptance of BFE increases? If Yes, please attach proof of property owner notification and acceptance (if available) . Elements of an notification can be found in the MT-2 Form 2 Instructions.	' ⊠ Yes □ No id examples of property owner
2.		es the request involve the placement or proposed placement of fill?	☐ Yes ☒ No
	μιυμι	res, the community must be able to certify that the area to be removed from the special flood hazard area, posed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flower properties of the pregulations set forth at 44 CFR 60.3(a)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for the properties of th	looding in goografanaa wiki- st
3.	For L	LOMR requests, is the regulatory floodway being revised?	⊠ Yes □ No
	studi	es, attach evidence of regulatory floodway revision notification . As per Paragraph 65.7(b)(1) of the NFIP R pired for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-died Zone A designation] unless a regulatory floodway is being added. Elements and examples of regulatory floodway is being added. Elements and examples of regulatory floodway is being added.	annual above Head-teles
4.		LOMR/CLOMR requests, does this request have the potential to impact an endangered species?	☐ Yes ⊠ No
	(ESA)	es, please submit documentation to the community to show that you have complied with Sections 9 and 10 of A). Section 9 of the ESA prohibits anyone from "taking" or harming an endangered species. If an action cies, a permit is required from U.S. Fish and Wildlife Service or National Marine Fisheries Service under Section	a might harm on andament
<u> </u>	For a	actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation pliance with Section 7(a)(2) of the ESA.	from the agency showing its

^{*} Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.

ATTACHMENT MT2-2c Page 1 of 2

Attachment to MT-2 Form 2 – Burton Creek Tributary D

Item A. Hydrology, No. 2, Comparison or Representative 1%-Annual-Change Discharge

Location	Drainage Area (sq-mi)	FIS (cfs)	Revised (cfs) (see Note 1 at end of this table)
At confluence with Burton Creek	1.84	3,240	3,240
Upstream of Cavitt Ave.	0.60	2,814	3,240

Note 1: The listing flows under the heading "Revised" are the Existing Condition flows. The Revised Conditions and Existing Conditions are the same; see Section 4.5 in Appendix A in the attached Technical Report for more detail.

Item A. Hydrology, No. 3, Methodology

Hydrologic methods used to revise precipitation/runoff are discussed in detail in Appendix B of the attached Technical Report.

Item A. Hydrology, No. 5, Impacts of Sediment Transport

Sediment Transport was not considered because significant channel improvements for erosion protection have been made over the years as a result of development. In addition, some of the channel is concrete lined.

Item B. Hydraulics, No. 1, Reach to be Revised

Reach to be Revised	Description	Cross Section	Water-Surface Elevations (ft)	
			FIS	Existing
Downstream Study Limit	Station 0		N/A	288 1
Downstream FIS Limit	Station 1426	A	293.2	291.0
Upstream FIS Limit	Station 4396	Н	307.5	3111
Upstream Study Limit	Station 8950	****	N/A	329.9

Item B. Hydraulics, No. 2, Hydraulic Method Used

The Duplicate Model is a HEC-2 model, version 4.6.2. All other remaining models are HEC-RAS models, version 3.1.2.

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Item B. Hydraulics, No. 4, Models Submitted

Model	Natural File Name	Floodway File Name
Duplicate Effective	TribD.Ih2 & BurtonCreekTribDHEC2Imp.prj	See discussion in Section 4.2 Appendix A Technical Report
Model Corrected Effective Model	BurtonCreekTribDHEC2Imp.prj	See discussion in Section 4.3 Appendix A Technical Report
Existing Conditions Model	BurtonCreekTribD_0705.prj	BurtonCreekTribDFloodwayAnalysis _0705.prj
Revised Conditions Model	Same as Existing Conditions Model	Same as Existing Conditions Model

Item C. Mapping Requirements

The undersigned hereby affirms that the following maps, entitled

EXHIBITS

- Regulatory (Current FEMA) Floodplain and Floodway versus Existing 100-year, 500-year, and Floodway Water Surface Boundaries
 - 3-1: Overall Burton Creek, Tributary C and Tributary D
 - 3-2: Lower Burton Creek
 - 3-3: Middle Burton Creek and Tributary C
 - 3-4: Upper Burton Creek and Tributary D
- Existing 100-year, 500-year, and Floodway Water Surface Boundaries Cross 4 Section Map Worksheet: In segments, as follows:
 - 4-1: Overall Burton Creek, Tributary C and Tributary D
 - 4-2: Lower Burton Creek, with 100-year Water Surface Elevations
 - 4-3: Middle Burton Creek and Tributary C, with 100-year Water Surface Elevations
 - 4-4: Upper Burton Creek and Tributary D, with 100-year Water Surface Elevations
- Existing Condition 100-Year, 500-Year and Floodway Boundaries With 5 Computed Existing Base Flood Elevations

and submitted with this LOMR MT-2 form are to the undersigned knowledge true and accurate representations of existing and revised floodplain and floodway conditions.

Signed

Michael A. Collins

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